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ABSTRACT

This paper deals with the systems approach to educational program improvement, which is an approach that allows teacher educators to plan and direct change in a systematic and systemic way. Instead of having to deal with problems one at a time, a systems approach allows one to solve several problems at the same time. This paper focuses on the first three steps of the process--the specification and examination of assumptions, theoretical model, and competencies. The first section of the paper includes information related to terms associated with systems in general and assumptions in particular, the logical as well as the psychological value of assumptions, methods of identifying and grouping assumptions, and factors to be considered in assessing the acceptability and usability of assumptions. The second section deals with a theoretical model for teacher education, that is, a structural design of the conceptual and functional components of the total system. It discusses the following three major classes which are included in the concept of a theoretical model for teacher education: (1) professional bases, (2) professional actions, and (3) professional contexts. It also explains how one develops a theoretical model. The third section defines competencies and refers to them as the terminal objectives of a teacher education program. This section also includes a discussion of the seven basic approaches to the specification of program competencies, the operationalization of a competency statement, and how competencies should be sequenced and evaluated. (BD)

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A Paper
Prepared for the
Professional Development Center
Teacher Corps Project: Houston, Texas

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May 1, 1975

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Due to ever increasing changes all around us, the situation faced by teacher educators today is different than the one with which they had to deal yesterday. In the past, teacher education programs had relatively few goals and the processes to achieve them were fairly simple and common from one program to another. Programs all too frequently were characterized by a high degree of vagueness and a low level of accountability. Traditionally, programs were defined in terms of content "coverage," and success, for the professor, was measured in terms of the amount of content he was able to "adequately" cover. For the student, success was equated with grades earned and course credits accumulated. Professors lectured, gave assignments, and administered exams: students made notes, wrote papers, and took tests. At the end of this knowledge accumulation, students participated in student teaching, i.e., they had a limited opportunity to try and apply what they had accumulated. During the student teaching experience, cooperating teachers frequently told student teachers to forget all of that ivory tower theory they had accumulated at the university and get down to the practical aspects of what teaching was all about. During the first few days, students were often perplexed by the conflicting viewpoints, but since they had very little, if any, commitment to the value of the knowledge they had accumulated they eventually forgot the ivory

tower abstractions and they adjusted to the system. Because decisions about teacher education programs were more often based on tradition than need, the cycle of events continued to be repeated over and over again.

The technological revolution has drastically increased the kind, amount, and speed of change in our lives today. Knowledge is increasing at an astounding pace and the complex communications systems we have developed are thrusting information on us so rapidly and consistently that we cannot assimilate it all. We do not know which knowledge is of most worth for what in which situation. Our confusion leads to frustration. Alvin Toffler has labeled the way this change affects us as a kind of future shock.

In the midst of this situation, educators are faced with a perplexing dilemma: on the one hand, demands are increasing for new and more effective ways to educate our population to meet and deal with the problems we face, and on the other hand, the taxpayers are reluctant to support education which they feel has been ineffective in the past. In response to this problem some rather significant changes have recently taken place in teacher education.

Teacher education programs are currently attempting to prepare a more diversified population of educational personnel. Increased numbers of goals have been accompanied by increased processes utilized to achieve them. Programs have generally become more specific, and consequently they have become more accountable. Programs are increasingly being defined in terms of competencies instead of content to be covered; success, for professors, is more frequently than in the past being measured in terms of student achievement. In addition student success is becoming equated with the attainment of teaching competencies instead of grades earned and courses completed. Professors are individualizing instruction more than they used to, and students are often given earlier and

more frequent opportunities to wed theory and practice through increased laboratory and field experiences. In addition, the education profession, as illustrated through teacher center efforts across the country, is taking a more active interest in the preparation of its future members.

In spite of all the changes mentioned, the design and conduct of teacher education programs still frequently leaves a great deal to be desired. Instead of basing decisions on tradition (as in the past) many decisions are currently being made (though perhaps not consciously) on the basis of their innovative appeal, e.g., "it's new; let's give it a try." Traditional processes may not be suited to current problems. However, innovations should be carefully considered and they should not be adopted haphazardly. Instead of change for the sake of change, it is proposed that change be planned and directed toward desired ends. While it may be true that the technological revolution has put us face-to-face with some problems we did not have before, it may be equally true that out of the technological revolution has come the means to deal with the new and challenging problems--the systems approach to educational program improvement. This approach allows teacher educators to plan and direct change in a systematic and systemic way. Instead of having to deal with problems one at a time, a systems approach allows one to solve several problems at the same time.

It is not the intent to cover all aspects of the systems approach herein. Rather, the approach in general is defined, and attention is focused on the first three steps of the process--the specification and examination of assumptions, theoretical model, and competencies.

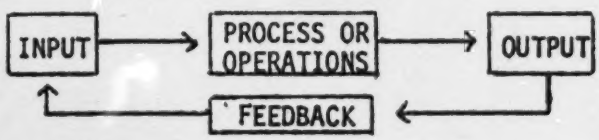
ASSUMPTIONS

As is explained in detail below, a set of assumptions provides the theoretical underpinning for the entire program. Included in this section is information related to terms associated with systems in general and assumptions in particular, the logical as well as the psychological value of assumptions, methods of identifying and grouping assumptions, and factors to be considered in assessing the acceptability and usability of assumptions.

Definition of Terms

While there are a vast number of terms associated with systems technology, it is not believed that total understanding of a comprehensive list of technical words is essential to begin the process of specifying and examining assumptions. It is believed that a basic understanding of the components in the system and their relationships to each other would be helpful to one beginning the process of applying the systems approach to the problem of improving a teacher education program. Consequently, only the most basic terms will be treated.

What is a system? Cook (1971:46) defines a system as "a logical arrangement of interdependent and interrelated parts which become a connected whole in order to accomplish a specific objective." Some examples of various systems cited by Cooper and Weber (1973:12) include the human body (a physiological system), the automobile (a mechanical system), and the school (a social system). A basic systems design includes input, process or operations, output, and feedback. The design can be depicted graphically as follows:



Every system depends on the quality of its output for its continuance. In a teacher education program, students are the major input, the sum total of their

educational experience while they are in the program constitutes the process, and certified graduates are the output of the system. The ultimate success of the teacher education system rests on the success of its graduates in attempting to bring about, in turn, desired outcomes in their students. In addition to the overall system, a system frequently includes several sub-systems. For example, the total teacher education system might include an instructional sub-system, a management sub-system, and an evaluation sub-system.

What is a systems approach? "Common sense by design" is one of Banathy's (1968a) definitions of a systems approach. A more comprehensive description (Banathy, 1968b) is as follows: the purpose of a system is achieved through processes in which interacting components of the system engage to produce a predetermined output. The purpose determines the process required and the process will determine the components of the system. As pointed out by Cooper and Weber (1973:12), the application of this systemic strategy to a human process is called a systems approach.

What are elements of an instructional system? Elements of an instructional system are the components thought to be essential to the overall effective functioning of the system. An effective instructional system usually includes at least the following five elements: (1) assumptions, (2) goals and objectives, (3) instructional strategies, (4) assessment procedures, and (5) feedback mechanism.

The Texas State Commission for Professional Competencies (1974:11-12) identified seven elements of an instructional system they believe to be essential. They are: (1) assumptions, (2) conceptual model, (3) competencies, (4) instructional program, (5) assessment and evaluation, (6) governance and management, and (7) description of the development process.

Notice that in both examples the first element in the system is the a assumptions. The assumptions "hook" all of the rest of the system together.

They provide the foundation or base for all decision making that follows concerning the other parts of the system.

What is an assumption? Very simply stated, an assumption is a belief. It is a value statement. It is a justification for educational practice. Sometimes (Houston, 1972:27) these beliefs, hunches, or justifications are based on research and sometimes they are based on environmental factors. In either case, since they play such an important role in the design of the total system, it is essential that in the development of systemic teacher education programs assumptions should be stated explicitly as a first step in the process.

Logical and Psychological Values of Assumptions

The importance of explicitly and clearly stated assumptions cannot be overstated. The basis for this statement, as has been indicated, is the fact that they form the theoretical underpinning for the entire program.

What are the logical and psychological values of assumptions? As stated by the Texas State Commission for Professional Competencies (1974:4), "assumptions are a vital aspect of sound program planning. They undergird the decisions made by program developers as they conceptualize, design, implement, manage, and evaluate programs." It is just good common sense, as Banathy might put it, to base a system on explicitly stated beliefs. It is logical. Furthermore, the Commission (Texas State Commission for Professional Competencies, 1974:14) states that the specification of assumptions is advantageous psychologically because of the tendency of an individual's behavior to be based on certain beliefs. Consequently, when program developers have specified their assumptions for a preparation program, they will have committed themselves, psychologically, to the kinds of competencies which are compatible with the stated assumptions.

Few, if any, serious program planners would disagree with the above mentioned statements. However, in spite of this fact, the failure of efforts

to improve teacher education programs can frequently be traced to a lack of clearly stated assumptions that form the foundation of the program. Perhaps an example will help illustrate the point.

Assume that either because of some dissatisfaction that surfaces from within (perhaps student criticism or faculty concern) or a weakness pointed out by an external agency (perhaps an accreditation team), efforts are initiated to improve a program. Task forces may be organized to prepare a plan of action, or the responsibility may be assigned to an existing committee. The group is asked to prepare its recommendations by a certain time and they dutifully get down to work. But where do they start?

Typically, task forces or committees organized to improve a program concern themselves with instructional or organizational issues. Are they lecturing too much? Too little? Are their classes too large? Too small? Should they use more graduate assistants? Fewer? Are the textbooks that are being used too long? Too short? Should they organize into teams? Do their own thing? And the questions go on and on. Whomever is most persuasive usually gets heard. If he or she can defend his or her answers to the questions with information from the source of concern, so much the better. Solutions are proposed, sometimes adopted, and occasionally institutionalized. From a logical point of view, what is wrong with this approach?

First of all, the approach described has not dealt with precedent elements that are essential in a logical approach to the problem. They have not addressed the issue of where they want to go (goals and objectives) or why they should go that way (assumptions). Furthermore, essential antecedent elements have also been ignored. Their evaluation procedures (assessment) cannot be tied to their desired goals, and the formative information they might get (feedback) will not

be very useful in terms of helping them determine better ways to achieve desired ends. In short, a logical sequence of program development has not been followed. If one proceeds in a logical fashion, the goals and objectives can be derived from the stated assumptions and the decisions concerning modifications in instructional strategies can be made on the basis of what is to be achieved (goals and objectives) and why it is important to achieve them (assumptions). In addition, measures of success (evaluation) can be tied to desired ends (goals and objectives) and the total process can be constantly improved through systematic input about the effectiveness of the interactions between the elements of the system (feedback). Without a sound foundation in the form of clearly stated assumptions the teacher education program will, at best, be a weak structure, and, at worst, it may collapse.

Methods of Identifying and Grouping Assumptions

Before one can begin to identify assumptions, one needs to know where to look. Basically, there are three major sources from which assumptions or justifications are drawn. They are: (1) philosophy, (2) psychology, and (3) sociology. Ideas put together from these three sources provide the major justifications for educational practice. They constitute a thought pattern. They provide the foundation for a program's statement of mission or philosophy.

It should constantly be kept in mind that statements of assumptions provide the theoretical underpinning for a program. They provide statements of belief that guide action. It simply is not sufficient to say that the assumptions are implied or "understood." While it may be true that many programs are, to some extent, based on assumptions that are supposedly understood, it is also true that a great deal of confusion and conflicting effort can be avoided if assumptions are made explicit right from the start. Once this is done, points

of disagreement or confusion will become visible and they can be discussed and hopefully resolved.

How are assumptions identified? While there are many different approaches that can be used to identify assumptions, three very basic ones provide enough options to get one going in the process. For lack of better names, the first approach is labeled "creative brainstorming" and the second approach is called "strawman (or strawperson if you prefer) reacting." The final approach is a synthesis of the first two.

In the creative brainstorming approach participants start from scratch and list all of the assumptions they believe to be relevant to the program. Once this has been accomplished the separate lists are combined into a single list and someone is given the task of editing in order to eliminate overlap and provide consistent terminology. The final list is reviewed by the original writers.

The strawman reacting approach is one in which previously generated lists of assumptions are presented to the group for their reaction. The group can either adopt one of the lists presented, or it can generate one of its own by modifying an existing list or by combining elements from several lists into a new one. If no lists are available, an officially adopted mission statement or a statement of philosophy might be examined for stated or implied assumptions.

The most desirable approach is a combination of creative brainstorming and strawman reacting. The process begins with creative brainstorming. Consequently, the resulting lists reflect the unique nature of the individuals and institutions involved. These lists are then synthesized and the resulting list is used as a "strawman" for group reaction. Since the strawman used is the result of internal

effort instead of external imposition, the psychological commitment to it is enhanced.

Regardless of the approach used, every effort should be made to eliminate conflicting assumptions. If left unresolved the overall effectiveness of the entire program could be seriously undermined. Decisions should be rational rather than emotional. If conflicts are not easily resolved, it might be useful to employ a rational group decision-making model.

A final point that needs to be made concerning the identification of assumptions is that the level of concern should always be kept in mind. If one is stating program assumptions they are likely to be at a different level than if one is stating assumptions for an entire institution. Institutional assumptions must, of necessity, be flexible enough to accommodate all programs that are a part of the institution. As a result, the list of assumptions for an entire university is likely to be shorter than the list for programs contained within it.

How are assumptions grouped? Just as there are several approaches that can be used to identify assumptions, there are an almost unlimited number of ways they can be grouped. For example, some categories include assumptions about individual differences, learning, societal forces, teacher roles, schools, education, institutions, organizational structures, scope of programs, individual needs, staff needs, structure of the discipline, and human nature.

Although the categories mentioned above may be perfectly viable choices in some situations, they may not work in others. Some are very general and some are quite specific. Some situations call for specific categories whereas others might require categories that are more encompassing in order to keep one from having to invent a new category every time a new assumption is added. An analogy illustrates the point. Suppose that one was trying to decide on some

categories to use for grouping identifying characteristics of lipstick. The category "red" might be selected, but if it was, what would happen when one came across some silver lipstick? In this case a larger category is needed--perhaps color. Color is a category that includes all possible tints and shades. The deciding factor is generally the level of concern. Education in general might call for more global categories than special education in particular.

Assumptions related to teacher education programs can generally be grouped under three major headings: (1) the learner, (2) the society, and (3) pedagogy. Other possibilities exist, but these three, with occasional sub-headings, will get the job done. Generally speaking, when one gets more than three or four main categories, ways to combine them should be explored. Another general rule to follow is that any time one gets more than seven to nine items under a heading, either a sub-heading should be introduced or some items should be eliminated or combined so as to get the total back in the seven to nine range.

Factors Affecting Acceptability and Usability of Assumptions

Constructing a set of program assumptions is the important first step toward systemic improvement of a teacher education program. The decision to take that first step is an important one. However, once the systems approach has been started, care should be taken to ensure its success. In this regard, several factors should be considered in order to enhance the acceptability and usability of the assumptions identified during the initial part of the process.

What factors affect acceptability and usability of assumptions? Five major factors affect the acceptability and usability of any set of program assumptions. They are: (1) involvement, (2) implications, (3) approval, (4) reality, and (5) validity.

Of the five items, involvement is probably the single most important factor. Likert (1961) stated that the degree of progress of an organization increased significantly as more individuals in the organization became involved in the decision-making process affecting the organization. This is just as true for an educational organization as it is for any other type of organization. Involvement in the identification of assumptions increases the stake one has in them and it increases the likelihood of their receiving approval (another factor of importance).

Once assumptions have been identified, attempts should be made to state all possible implications so that they can be discussed before proceeding. It can be very frustrating and time wasting to reach a later stage of development only to have someone yell "foul" because he did not realize that a particular approach was implied by a given assumption. Naturally, not all implications will surface at the initial stage. However, the effort to identify and discuss them at that point will be time well spent.

The last two factors, reality and validity, are related to the relevance of the stated assumptions. Items that are not relevant are seldom usable even though many persons may have been involved in identifying, discussing, and approving them. Reality can be checked by determining the relationships between the assumptions and the "real" context of the program. Perceptions of all constituencies should be checked. Johnson and Shearron (1971:1-2) indicate that validity for assumptions that are of a factual nature can be demonstrated. For example, one can observe the fact that students differ from one another physically. Validity of statements that are hypothesized can be tested. However, the validity of pure value type assumptions must, by their very nature, rest on mutual agreement. This constitutes a type of face validity.

THEORETICAL MODEL

As life becomes more complex we human beings create new structures that we hope will help us make better sense out of the mass of confusion we face. Certainly teacher educators are no exception. Gone are the days when little was expected in teacher education beyond offering a few theoretical courses and a brief student teaching experience for practicing what was supposedly learned. Increasingly, graduates of teacher education programs are expected to be prepared to perform a variety of functions in highly specialized teaching roles within different school settings. While the quantity of supply has kept up with the demand, the quality has not always lived up to expectations.

Many teacher educators felt the solution was just around the corner with the arrival of competency-based teacher education (CBTE) and its applications of systems approaches. However, after a great deal of progress it appears that something is still missing. It seems that CBTE structures frequently do not fit the theoretical underpinnings provided by their assumptions. It is almost as if a foundation (assumptions) was poured more or less randomly in one area, and a building (CBTE program) was built, in the same manner, someplace else. Finally the two were joined together. Since there had been no blueprint to guide and coordinate construction, both the foundation (assumptions) and the building (program) were weak and inadequate individually as well as in combination.

Advocates and critics of CBTE alike have noted the weakness mentioned above. Harry Brody has stated that C/PBTE ignores the necessity of developing theoretical frameworks that are fundamental to professional enterprise. La Grone (Lottes, 1973:iii) indicated that "the professional component, as well as other components, of the teacher education program will continue to experience extreme difficulty until a workable conceptual basis has been created and generally accepted."

What Is a Theoretical Model for Teacher Education?

A theoretical model for teacher education is a structural design of the conceptual and functional components of the total system. It is to the development of a teacher education program as a blueprint is to the construction of a building. The model may be thought of as a conceptual generalization flowing from the assumptions and providing the framework for the overall organization and operation of the total program. Like any concept, it can be explained in terms of the organization of its characteristics or components.

What Are the Classes, Categories, and Sub-Categories of a Theoretical Model for Teacher Education?

The concept of a theoretical model for teacher education is still in a formative stage. Although noteworthy attempts have been made (Joyce, 1972, and Lottes, 1973) to develop a workable model, no single conceptual basis has yet received general acceptance. Suggestions and examples used herein represent what is recommended by the Texas State Commission for Professional Competencies (1974) as well as additional items the author believes are representative of current "best thinking" on the topic. The concept of a theoretical model for teacher education presented herein is presented in terms of its component classes, categories, and sub-categories.

The three major classes which are included in the concept of a theoretical model for teacher education are: 1) professional bases, 2) professional actions, and 3) professional contexts.

Professional bases contain two major categories: 1) knowledge, and value. The sub-categories of knowledge are: (1) general, and (2) special. Lottes (1973:63) states that "the absence of commitment to common professional bases . . . would make useless any kind of attempt to access professional competence in

teaching." Every profession is based on knowledge--some general, and some highly specialized. There is a body of knowledge, commonly called general education, which is fairly common among the professions. It is normally thought of as the liberal arts. For example, skill in communication (oral and written) is required in all professions. The fundamental ideas of effective communications are applicable in all professions. Prospective doctors, lawyers, and teachers can all study communications together with little difficulty. In fact they can probably help each other. All of the traditional disciplines contribute to the general knowledge base of any profession. However, as a professional studies general ideas, he is doing so as a specialist. He puts the ideas in a particular frame of reference which results from the specialized information that forms a knowledge base unique to his profession. This specialized knowledge is not generally possessed by the common man. According to La Grone (1974:146), it is the "know what" and the "know how" of the profession.

Every profession also has a value base. The value base of the profession includes values of the society served, and values of the profession itself. The society has certain values concerning the people to be served by the profession as well as the services they are to receive. A value held by our society that affects the practice of law is the notion that a person is innocent until proven guilty. Every profession is governed by values--usually called professional ethics--that are unique to that profession. The value imposed by society of presumed innocence results in ethical standards for lawyers that control the conduct of trials so as to protect this notion. In the area of education, society values the individual's right to privacy. Consequently, in the conduct of educational research it would be considered unethical to reveal information about a person without prior consent.

Professional actions for all professions are assumed to be rational. La Grone (1974:147) defines rational action as "(1) the ability to make clear the goal of action, (2) the ability to formulate a set of procedures that... [are inferred to] lead to the attainment of the objective, (3) the ability to make plain what will count as evidence that the objective has been attained, (4) the ability to put the procedures into effect, and (5) the ability to determine the effectiveness of the procedures. The layman may make decisions emotionally, but the professional is always rational in his decisions related to his profession. The class of professional actions in teacher education is divided into two major categories: 1) improvement, and 2) teaching. Sub-categories of improvement include: 1) self-improvement, and 2) improvement of one's profession. The category of teaching is divided into three sub-categories: 1) formulating, 2) implementing, and 3) validating.

In any profession, the person has an obligation (due to knowledge and value bases) to improve himself as well as his profession. Self-improvement in teacher education frequently takes the form of post graduate study to refresh, refine, or develop needed skills, strategies, or roles. In the area of improvement of the profession, teacher educators frequently conduct research and report on successful approaches so as to increase the base of the profession.

Professional actions also include the all important category of teaching. In teaching the professional is required to perform actions in three sub-categories: 1) formulating, 2) implementing, and 3) validating. Formulating actions include diagnosing, planning, and prescribing. Implementing actions include the utilization of skills, strategies, and roles, and validating includes evaluating, explaining, and justifying.

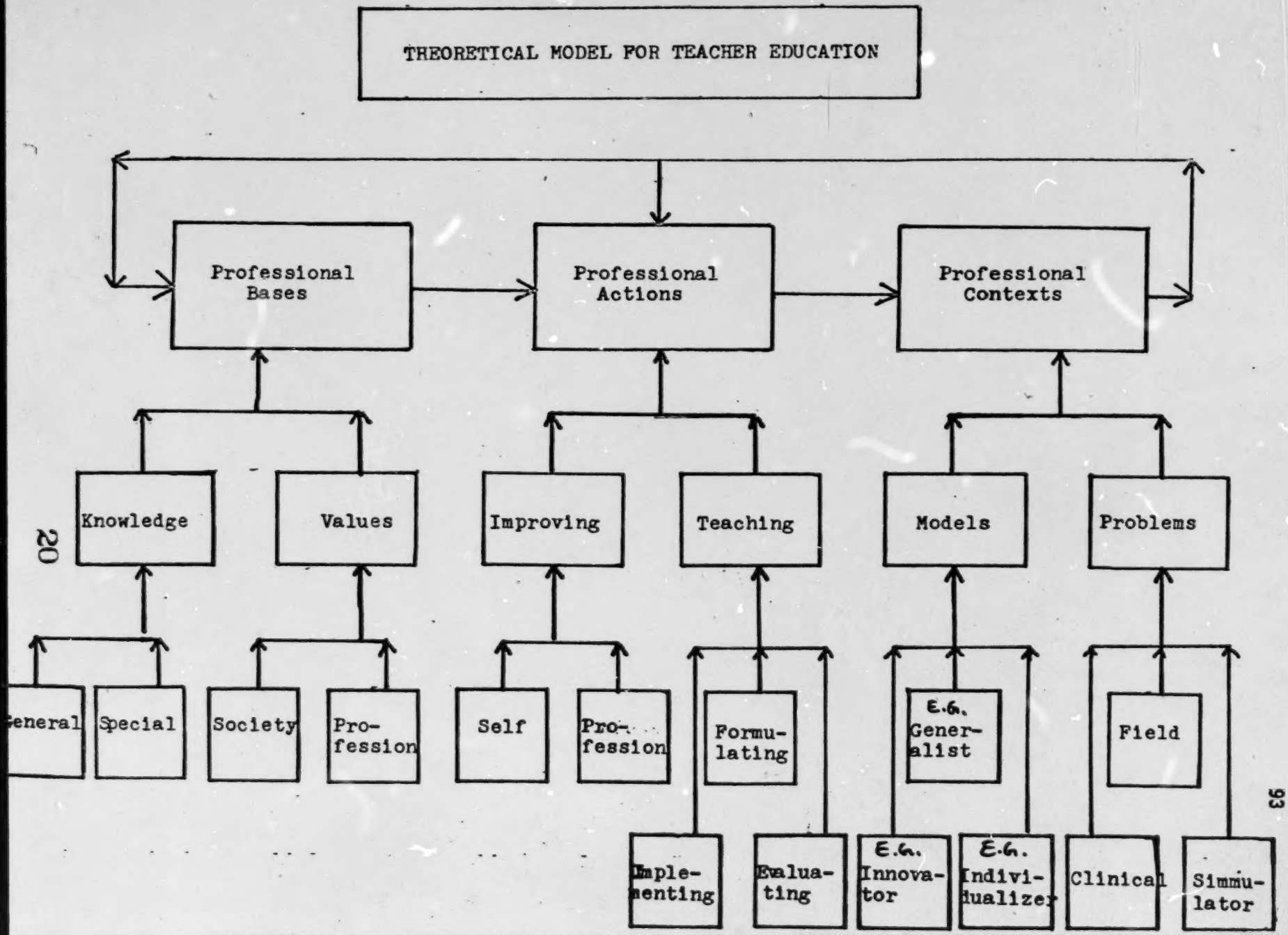
The last two items (explaining and justifying) bear a particularly significant -

relationship to the notion of rational action. La Grone (1974:150) states that "to explain a teaching action is to set forth a generalization from which specific action can be deduced. When the action meets the conditions of the generalization, it is justified."

The class of professional contexts is especially important in the overall integration of the various components of the model. It relates to the "setting" in which instruction takes place. Two basic categories make up this class: (1) models, and (2) problems.

The category of models uses as its point of departure the various models of teaching such as "generalist," "Innovator," and "Individualizer." Training in the use of these models becomes the context in which the trainee learns the actions in the teaching category.

Another option in terms of contexts is the problems approach. Included in the problems category are problems that are simulated, clinically derived, and field identified. In this setting the trainee brings the professional bases and actions to bear on problem situations both real and fabricated.


THEORETICAL MODEL FOR TEACHER EDUCATION
Professional Bases
Professional Actions
Professional Contexts
Knowledge
Values
Improving
Teaching
Models
Problems
General
Special
Society
Pro-fession
Self
Pro-fession
Formu-lating
E.G. Gener-alist
Field
Imple-menting
Evalua-ting
E.G. Innova-tor
E.G. Indivi-dualizer
Clinical
Simmu-lator

As one can tell by comparing this model with that of La Grone (1974:152) this author has accepted much of that original and extremely useful work. However, especially in the category of teaching and the class of professional contexts, there have been some significant changes suggested. It is hoped that these changes, coupled with other minor ones, will improve and not weaken the overall model. Ultimately, that judgment is left to the reader. Regardless, the quote La Grone (Lottes, 1973:iii) once again," the professional component, as well as other components, of the teacher education program will continue to experience extreme difficulty until a workable conceptual basis has been created and generally accepted."

How Does One Develop a Theoretical Model?

Although a number of approaches are available, the two most functional seem to be an **inductive approach** and a **deductive approach.** We will examine the deductive approach first.

Joyce and Weil (1972:5) indicate that program elements should be developed in a wholistic fashion not a particularistic one. They explain that in particularistic approaches, elements are designed and built separately. On the other hand, wholistic approaches flow from an overall conception which controls the creation of the pieces and provides a number of screens through which they are filtered and unified. This wholistic approach comes under the heading of a deductive approach. In the deductive approach a model of the teacher is constructed in terms of the competence areas included in a given role of the teacher (Joyce and Weil, 1972:5). In this approach a theoretical position is assumed and the teacher education program is built around it (the Michigan State University Elementary Model and the Columbia University Model Program are examples of the utilization of this approach. The model of teacher defines the

substance of the program by telling us what knowledge will be taught, which skills will be acquired, and how these will fit together (Joyce, 1974:25).

Another strategy in the deductive approach is to move from the assumptions to the specification of other parts of the program by deducing each component from the previous one.

The major strength of this approach is its promotion of unity. Its major weakness is in its requirement for almost complete agreement among the members of the development team. Furthermore, Joyce and Weil (1972:5) indicate that centralized control of the process is probably necessary as well.

In an inductive approach desired characteristics are listed first then one works inductively to construct a program designed to bring about the desired qualities. For example, the "ideal" student can also be used as a starting point in creating a theoretical model for a teacher education program. The "ideal" student is described and the characteristics needed by the teacher to bring about the desired results are hypothesized, then the program structure thought to be necessary to promote the development of the desired teacher competencies is hypothesized.

Regardless of the approach chosen it should be kept constantly in mind that an effective program has a high degree of conceptual unity among its parts. Systemic programs are highly interactional.

How Can Integration Be Promoted Across Model Components?

Lottes (1973:28) states that the components in professional preparation should include every significant class of teaching action. However, as we have seen, this covers a lot of territory and Joyce (1974:3) cautions us that "if competency based programs are to succeed, they must . . . have the power to help the teacher integrate competencies . . . ." Fine, but how? After a fair amount of

"hands-on" experience with CBTE programs, and a rather extensive review of the literature, the position taken herein is that two approaches are needed to provide a meaningful professional context which will truly promote integration across all components of the teacher education program. They are: (1) model context, and (2) problems context. Both are used throughout the program.

The model context provides a very effective vehicle for ensuring meaningful program integration. Combs and Kinzer (1974:182) point out that the modern teacher must fill more roles than just that of a director. Furthermore, "since people learn most effectively from their own experience, teacher education programs should demonstrate in their philosophy, practices, and human relationships a wide variety of models." Weil (1974:117) indicates that one of the major advantages of a model of teaching is that it operationalizes a philosophy of education and/or a learning theory into a pattern of activities called a teaching strategy. Teachers can be trained to perform a teaching strategy.

Weil (1974:117) defines a teaching strategy as "complex behavioral events in which the teacher carries out a sequence of activities designed to implement particular educational objectives and goals." She contrasts strategies with skills by pointing out that skills are smaller units of teaching, frequently a single "move." Basically, skills are instructional techniques and procedures that are used in a variety of combinations depending on the need. Using a football analogy, one might think of blocking and tackling as skills and the split T formation as a model. The game plan for the particular way the formation (model) will be employed is the strategy. Obviously, the blocking and tackling skills lose meaning outside of the context of a formation and a strategy.

Weil (1974:117) identifies four concepts that are useful in extrapolating and describing a strategy: (1) syntax (describes model in action--sequence of

events, 2) principles of reaction (how teacher responds to student), 3) social system (roles and norms encouraged--deals with the degree of structure in the environment), and 4) support system (requirements beyond the usual human skills). Joyce (1974:19-20) identifies sixteen instructional strategies (or models) that he groups into four broad categories: 1) information processing models (systems to improve ability to organize data, facilitate inductive thinking, and promote concept development), 2) social interaction models (through democratic process and group relations develop one's ability to relate to others), 3) individual person models (emphasizes creativity and development of self-concept), and 4) behavior modification (shaping behavior).

The teacher we see in action most frequently is the "Gereralist." The model of the generalist includes at least five roles (Joyce, 1974:16). They are: 1) counselor, 2) academician, 3) skill builder, 4) productive thinker, and 5) community builder. The five roles require the ability to apply a number of models in the classroom.

In choosing models for emphasis in a program, "ideal" considerations must not be allowed to totally crowd out practical reality. Preservice teacher education should emphasize enough models to enable the teacher to begin dealing effectively with the real problems he will face. Along this line, Joyce (1974: 30) states that "the competency orientation appears to require selecting a model of the teacher flexible enough for personal variation and creating components directly related to the model." Furthermore, careful selection of a few basic models can have a very powerful unifying effect on a program. Weil (1974:140) lists three major advantages of using a model or teaching strategy approach. First, it constitutes a functional unit of behavior. Second, it is consistent in terms of theoretical properties, and last, strategies can be linked more

directly to learner outcomes than can a single teaching skill.

The problems context becomes increasingly important as the trainee progresses through the program. Joyce (1974:4) says that because of the complex nature of the t e a c h e r ' s r o l e , a [t r a i n i n g] p r o g r a m should contain multiple elements which require coordination and focus. This is necessary so that the teacher will not only master specific competencies but also integrate them intelligently. The problem context provides an appropriate setting for this integration.

Lottes (1973:30) presents another argument in favor of the problems approach. He states that "pressing problems" are the smallest units into which teaching activity can be analyzed and remain professionally functional. He points out that an act such as asking questions makes no sense when performed in isolation. What must be realized is that "the occasion when an act may-or must-be performed and the way in which the act ought to be performed depends upon the curricular context, the way in which previous acts have been performed, the professional values, and so forth." (Lottes, 1973:2).

The simulated problems approach used by many is good, as far as it goes, but it does not go quite far enough. It sets up a series of "simulated" problems for the learner to solve. This, by itself, is inadequate. The problems are frequently only perceived as hurdles by the learner. Comb's notion of real perceived problems is much better. In this approach a real situation, such as a clinical interaction or a field experience provides, the problem to be resolved. Here the teacher must recognize (diagnose) the problem, propose (prescribe) a solution, try it out (implement it), check the results (evaluate), and do it all over again if necessary (recycle). All of these actions are part of the professional action of teaching. Real integration will occurr in this setting.

There are many advantages to a problem approach, but only two pointed out by Combs and Kinzer (1974:79) will be mentioned here. First, a problems approach makes the teacher and the student partners in a common project, and second, "people do not need to be rewarded, cajoled, or punished to deal with matters that affect them in important and immediate ways."

If one accepts Whitehead's definition of education (the art of acquiring the ability to utilize knowledge) then the problems approach makes a lot of sense. However, to be able to solve problems one needs knowledge. As a result, probably the most desirable approach is to use the combination of both contexts suggested in the figure on the following page. As is indicated, one begins the training program with the major emphasis of training focused on performance competencies within the model context. As knowledge is increased and more problems arise, the emphasis gradually shifts to consequence competencies within the problems context.

CONSEQUENCES
PROBLEMS CONTEXT
TRAINING PERIOD
IMPLEMENTATION
MODEL PERFORMANCE CONTEXT

COMPETENCIES

Competency, if not proficiency, should be the minimum goal of a teacher education program. Peter (1975) states:

> "If teaching is to be worthy of the title profession, its members must possess competencies not present in non-members of the profession. Dentists can repair teeth and perform dental surgery. Surgeons can perform operations. Architects can prepare plans and specifications. Lay persons are not competent to do these things. Through competency-based teacher education, teachers can acquire unique capabilities to promote learning in children. Teaching, which is the most important profession, could then become truly the greatest profession."

While the above mentioned statement is quite straightfoward, it is not as easily accomplished as one might think. Many decades of research efforts have been directed toward the search for what makes an effective teacher. Combs (1974) defines the effective teacher as "... a unique human being who has learned to use himself effectively and efficiently to carry out his own and society's purposes in the education of others." Joyce (1974:23) states that "competence... is the ability to select, then use curricular and instructional models and adjust them to suit the characteristics of students." In other words, (Joyce, 1974:22) "... good teaching is likely to be a matter of using skills or models appropriate to the learner and to the types of outcomes which are sought." In spite of these statements, we still do not have an accepted definition of an effective teacher. Perhaps we never will.

A major problem arises when competencies are taken out of context. Weil (1974) states that "large complex behaviors are not the summation of smaller behaviors, but training in the latter can certainly contribute to greater effectiveness in more complex behaviors." When one looks at traits, behaviors, or "competencies" in isolation, one ignores the fact that they are interactive. Competencies must be viewed interactively within the context of the assumptions

and the theoretical model which were identified for the program. If we start from a sound theoretical model, we are more likely to avoid disconnectedness and achieve a desirable end. For example, in the part of this paper dealing with the theoretical model, it was pointed out that teachers should perform rational teaching and improving actions in a context supported by knowledge and value bases. Using this approach, La Grone's definition of a competent teacher is particularly appropriate. He states (1973:151) that a competent teacher is "one who is able to perform in a manner consistent with the ethical, societal, and knowledge bases of the teaching profession over all... classes of teaching action."

What is a Competency?

A competency is a knowledge, skill, attitude, or behavior that is demonstrated within a given context up to a specified minimum standard. When a person is competent he is "safe."

Although many persons use the terms performance and competency interchangeably, they do not mean the same thing. Houston (1972:23) states that "one measures performance but evaluates competence." We want performance, of course, but more importantly, we want competent performance at the very least. For example, if one emphasized performance only in teacher education the result might be graduates who could ask questions, identify concepts, create different structures, but not be able to utilize an inductive teaching strategy to facilitate learning in a student. Houston (1972:73) points out another difference between performance and competence. He states that whereas performance can be measured in a short period of time, competence must be evaluated over a longer period of time.

Frequently, competencies thought to be essential for effective teaching are referred to as the "terminal" objectives of a teacher education program. These

objectives are usually one of three types: 1) knowledge, 2) performance, and 3) consequence. Very often programs include "experiential" or "exploratory" objectives in their programs too. These types of objectives can be in any domain of learning (cognitive, psychomotor, or affective).

How Does One Approach Competency Specification?

Once agreement has been reached on the definition of a competency, one is ready to proceed to the actual specification of the competencies.

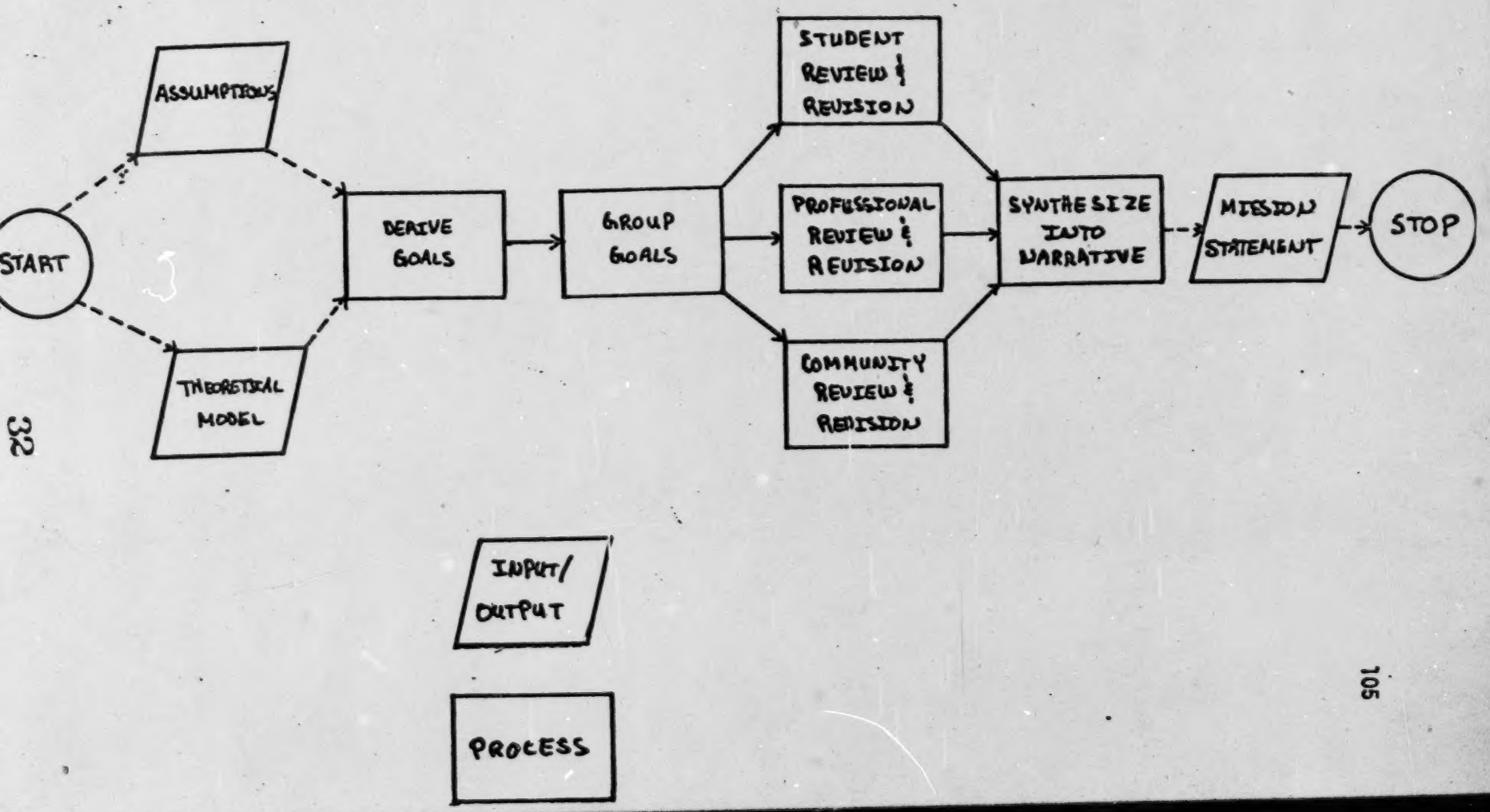
While there are many ways to approach the specification of program competencies, most of them are simply a variation on seven basic approaches: 1) mission statement, 2) competency collection, 3) philosophical position, 4) program and/or course conversion, 5) needs assessment, 6) task or role analysis, and 7) model of the teacher.

In the mission statement approach one deduces the competencies from the program goals specified in the mission statement. Johnson and Shearron (1971) state that "... teacher education goals [a mission statement], whether implicit or explicit, are one basis for developing and specifying competencies." From each goal a numberof competencies can be deduced. These, in turn, can be broken down into objectives that "enable" the achievement of the competency or terminal objective.

In order to use this approach one either has to have a mission statement available or one must be developed. If this approach is selected and no mission statement is readily available one can be developed very easily by following the procedure outlined on the following page. As indicated, the assumptions and the theoretical model serve as input from which goals are deduced. Once the goals have been stated, they may be grouped to facilitate considerations. One institution grouped goals under the following headings: 1) students, 2) programs, and 3) staff.

After goals have been written and grouped, they are submitted to appropriate groups for review and suggested revision. Following this, the goals are synthesized and presented in a narrative form which becomes the mission statement.

DEVELOPING TEACHER EDUCATION PROGRAM MISSION STATEMENT



The competency collection approach is one which has been used by a number of programs. Involvement in, and research related to CBTE has yielded a vast number of competencies. Program developers employing competency collection realize that it would be impossible for students to acquire all of the competencies that have been stated, so they use the "mail order catalog strategy" to identify the competencies for their program. A number of comprehensive "catalogs" are available for this purpose (Turner, 1973; Dodl, 1973). The approach involves looking through the catalog and selecting those competencies believed to be appropriate.

The major weakness of this approach is the attention that it concentrates on the wrong dynamics. Weil (1974) points out that while many programs are built on a series of micro-level competencies, these small, individual behaviors should be derived from a particular strategy. The search for teaching skills is primarily deductive--the competency collection approach is primarily inductive.

It should not be implied that the use of competency catalogs is totally inappropriate. They can be used quite effectively as a check to see if the desired areas have been covered.

The philosophical position approach is another method that has been used by some. In this approach a philosophical position is assumed and competencies are deduced from it. For example, one who accepts the position advocated by John Dewey (Experimentalism) would likely include competencies related to the use of inductive strategies, democratic classroom organization, and structure of experience. One building a program around existential phenomenology would be more likely to include competencies related to the promotion of self-concept, values of an individual nature, and individual tutoring.

The primary advantage of building a program around a single philosophical

position is that it yields an extremely high degree of unity. Its major disadvantage is the inflexibility of the approach. You are putting all of your money on one horse. If he does not come in you (and the student) are sunk.

One of the most frequently used approaches is the course or program translation approach. With this method one reformulates existing courses and/or programs in behavioral terms. Once this has been done, modules are usually developed to facilitate the accomplishment of the objectives.

One of the biggest disadvantages of this approach is the fact that courses are usually revised independently which results in little, if any, integration. Houston (1972:21) indicates that "the underlying assumptions of CBTE are so drastically different from traditional approaches that they are incompatable." Traditional courses just do not convert to CBTE courses. As is the case with the competency collection approach, the course or program conversion approach does have the advantage of making gaps and overlaps visable. Also, the common aspects can be identified and grouped into an essential competency core.

The needs assessment approach can zero in on either the needs of the learner or the needs of society. In this approach (primarily a deductive one) the needs are identified, the program is developed, and the competencies needed to implement the program are deduced. A need, as used herein, is a "gap" between the actual and the desired. Closing those gaps becomes the teacher's goal.

An advantage of this approach is its appeal to learners and society. However, it has the major disadvantage of not being in control of intervening variables that come into play between the desired product and the identified competencies.

The task or role analysis approach is one in which teachers may be observed in action or asked to list competencies they must possess. Another way this

approach is used is for a professional to hypothesize about desirable competencies. Elam (1972:1) states that a program is performance-based if competencies are derived from teacher roles which are stated in such a manner that it is possible to assess a student's behavior in relation to specific competencies, and made public in advance. The major advantage of this approach is its relevance to the functions actually performed by teachers. However, one serious drawback is the amount of time and effort that are required to collect data on which to base a decision. Furthermore, when observation is used, the act observed tends to be seen as a single move rather than a part of an ongoing strategy. Performance observed is highly situational so extreme care must be taken so as not to misinterpret actions.

The final method presented is the model of the teacher approach Where the theoretical model is built around models of teaching or teaching strategies, as was the case with the theoretical model herein, competencies can be derived or deduced from the model of the teacher, Weil (1974:128) points out that the learner can be required to acquire competencies that increase his repertoire of micro-behaviors when a models approach is used. Furthermore (Weil, 1974:131), the basic skills that cut across models (modifying cognitive level, structuring, and focusing) can be viewed as a core of essential competencies while the ideosyncratic skills that are unique to a particular strategy can be required of those who will fill particular roles.

A number of models have been described that could be utilized by an institution wishing to use this approach. Joyce, Soltis, and Weil (1974) list four model types (information processors, social, personal, and behavior modification) that include sixteen specific models. Houston (1972:38-39) mentions three models (child focusers, task focusers, and pragmatists). Supporters of

this approach assert that competencies must be related to a model of the teacher or else they will be just as disconnected as they were in the old, traditional approach.

Regardless of the model chosen, according to Weil (1974:119) there are four steps to follow in the process of deriving competency statements from the model. They are: (1) initial extrapolation, (2) basic skills, (3) development of instructional training system, (4) clinical assessment of model performance.

The initial extrapolation refers to a condensation of the original theoretical description in terms of syntax, social system, principles of reaction, and support systems (Weil, 1974:119).

Basic skills are the micro-behaviors that are common to all strategies. Modifying the cognitive level, structuring, and focusing are examples of basic skills. Weil (1974:119) points out that every strategy has a dominant skill. For example, structuring is the essence of group investigation while modifying the cognitive level is the focus of inductive thinking.

Developing an instructional training system involves breaking complex behaviors into smaller prerequisite and constituent behaviors and designing the training sequence with evaluation and feedback built in. It involves an analysis of phases of activity, key model elements, the teacher's role in each task, and specific teacher competencies (Weil, 1974:132).

The final step is the clinical assessment of the model performance. Weil (1974:132) states that these measures make up the feedback tools of the training system. Each item in instruction is a potential competency.

Weil (1974:140) lists two major advantages of the models approach of specifying competencies. First she says that competencies derived in this manner are likely to be a more permanent part of a teacher's repertoire than those

selected in a less wholistic fashion because they are set in the large context of the model which serves as an implicit decision-making tool. Second, this approach yields more interrelationship between various sub-sets of skills below basic skill level because the model describes skills.

As we have seen, a number of approaches are possible. The ones presented here are not the only ones, but they are representative. As far as the author is concerned, a combination of the mission statement and the models approach offers the best alternative. However, others may find a different approach more practical.

How Does One Operationalize a Competency Statement?

Initially, competencies are usually specified in fairly general terms, i.e., they do not include conditions nor a criterion of performance. This is done purposely to avoid conflict over situational context. An additional reason is to facilitate personalization of the program by allowing these factors to remain somewhat negotiable. Once agreement can be reached at this level it becomes necessary to operationalize the general competency statements so as to make them useable in a given program. This is done simply through the addition of any pertinent conditions and the specification of the criterion for measuring success.

Perhaps an example would be helpful. A general competency statement for a prospective high school choral director might be: conduct mixed choir of senior level. Operationalization of this general statement might be: given a group of between 30 and 45 senior high girls and boys and a set of chorale books, the teacher will select and teach a Bach chorale within one hour so that the choir can perform a capella with no errors. Obviously, the general competency could have been operationalized a number of other ways. Operationalization is highly situational and should be negotiable.

How Should Competencies be Sequenced?

Up until this point we have been very logical in our approach. However, Houston (1972:70) states that logically derived objectives usually must be rearranged into a psychological sequence based on student readiness and development. There are several factors that might be considered when sequencing competencies. Five of them are:

1. Move from simple to complex.
2. Build upon basic competencies.
3. Consider learners psychological readiness.
4. Plan integration into learner's "style."
5. Arrange for accomplishment of one competency to serve as feedback on another.

How Are Competencies Evaluated?

There are basically two phases of competency evaluation. The first is a process evaluation and the second is an actual product evaluation. In the process phase, a yes answer is necessary on the following questions:

1. Was consensus reached concerning
   a. a definition of "competency?"
   b. approach(es) to be used to specify competencies?
   c. method to be used to determine sequence of objectives?
2. Were competencies
   a. made public prior to instruction?
   b. utilized in developing the program?
   c. included for each class in the theoretical model?
3. Were the competencies clustered so as to relate to the elements of the professional program?

4. Were competencies specified for professional roles including
   a. all professionals?
   b. general roles (teachers, administrators, counselors)?
   c. role assignment (e.g., principal, superintendent, teacher)?
   d. level (elementary, high school)?
   e. teaching speciality (e.g., art, music)?
   f. other career conditions (e.g., bilingual, urban)?

The second phase of competency evaluation deals with an evaluation of the quality of the product itself. Again, a yes answer is required for all questions.

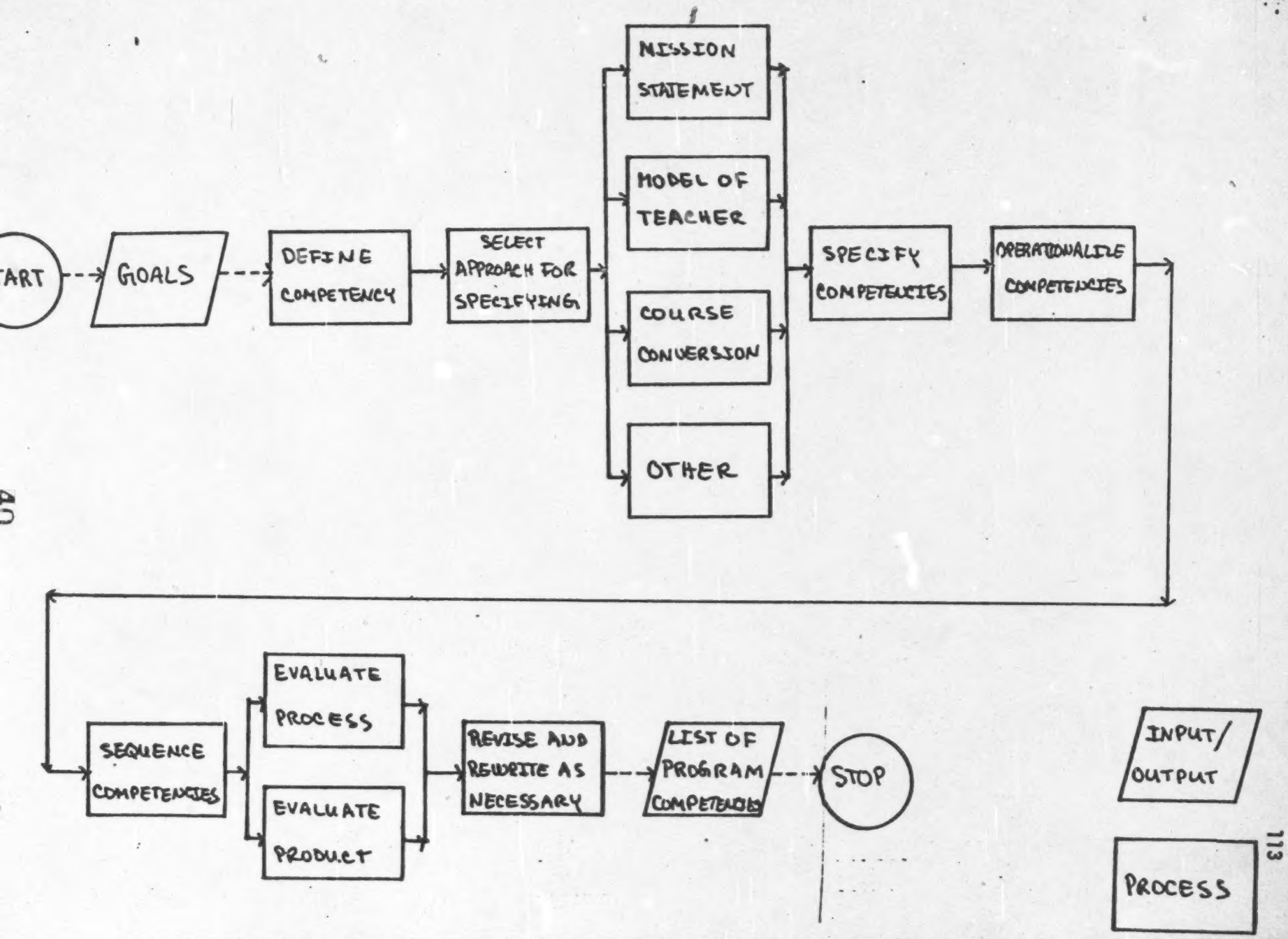
*1. Does the set of competencies logically lead to a teacher model shown in the thoretical model?
*2. Does each competency contribute to the overall model?
3. Is each competency stated as a measurable objective (specific, contains conditions, and criteria for evaluating success).
*4. Do program competencies cummulatively meet certification requirements?
5. Is the teacher who can demonstrate a set of competencies more likely to be effective than one who cannot?
6. Are competencies compatible with assumptions?
7. Are competencies related to at least one of the professional actions of either teaching or improving?
8. Do competencies flow logically from the mission statement?
9. Are competencies acceptable to students?

*Adapted from Houston (1972:90-91).

We can be certain of at least one thing--the future will be different than the present. Consequently, competencies must constantly be examined for relevance.

The entire process related to the competency phase is illustrated on the following page.

PROCESS FOR THE SPECIFICATION OF COMPETENCIES



Dodl and Shalock (1973:51-52) cite five major consequences of using specifically stated competencies as a basis for teacher education: 1) teacher education would become a noncourse, noncredit enterprise because of necessity for time flexibility, 2) there could be a wider range of educational specialists, 3) efforts to clarify the nature of desirable pupil outcomes would be intensified, 4) there would be more interplay between personal goal setting, information gathering, teaching analysis, and assessment of outcome achievements, and 5) objectives would be more likely to be attained.

One final word. While specifying assumptions, developing a theoretical model, and identifying competencies constitute the first three steps in a systemic effort to improve teacher education programs, they should not be thought of as a series of linear activities. Systems, by their very nature, are not linear. They are circular. They are interactive. One should utilize feedback constantly in an attempt to improve "completed" steps or phases. Jones (1972) states that "processes and components interact, and feedback from any point can force reexamination of an earlier step before proceeding further."

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*Recommended for Additional reading.
**Recommended for additional reading--assumptions.
***Recommended for additional reading--theoretical model.
****Recommended for additional reading--competencies.

APPENDIX B

GLOSSARY OF TERMS

Assumption -- a belief or value statement that serves as a justification for educational practice.

Competency -- a knowledge, skill, attitude, or behavior that is demonstrated within a given context up to a minimum standard.

Mission Statement -- a formal statement of the program goals for students to accomplish. When made more specific these goals become objectives or competency statements.

System -- a logical arrangement of interdependent and interrelated parts which become a connected whole in order to accomplish a certain objective.

Systems Approach -- common sense by design.

Teaching Strategy -- complex behavioral events where the teacher carries out a definite sequence of activities designed to promote accomplishment of particular educational objectives and goals.

Theoretical Model -- the "blueprint" from which the teacher education program is developed. It is an "advance organizer" for the entire program. Stated more formally, it is a structural design of the conceptual and functional components of the total system.